

We claim:

1. A method for making a tissue engineering scaffold for inducing formation of extracellular matrix by cells bound to the scaffold comprising coupling matrix-enhancing molecules to the scaffold in an effective density to elicit production of extracellular matrix without increasing cellular proliferation, wherein when the matrix-enhancing molecules are TGF- $\beta$ , the TGF- $\beta$  is coupled to the matrix by a polymer tether having a molecular weight between 2000 and 6000 and is in a density between 1 and 100 ng TGF- $\beta$ /ml or in a concentration of between about  $4 \times 10^{-6}$  and  $4 \times 10^{-3}$  nmol/ml.
2. The method of claim 1 further comprising attaching cells to the scaffold.
3. The method of claim 1 wherein the matrix-enhancing molecules are angiotensin II.
4. The method of claim 1 wherein the matrix-enhancing molecules are insulin-like growth factor.
5. The method of claim 1 wherein the matrix-enhancing molecules are ascorbic acid.
6. The method of claim 1 wherein the matrix-enhancing molecules are covalently coupled to tethers which are covalently coupled to the scaffold.
7. The method of claim 1 wherein the scaffold is a hydrogel.
8. The method of claim 7 wherein the hydrogel is formed of a polymer selected from the group consisting of alginate, collagen, hyaluronic acid, and polyethylene glycol polymers.
9. The method of claim 7 wherein the matrix-enhancing molecules are TGF- $\beta$  coupled to the hydrogel in a concentration of between about  $4 \times 10^{-6}$  and  $4 \times 10^{-3}$  nmol/ml.
10. A tissue engineering scaffold for inducing formation of extracellular matrix by cells bound to the scaffold comprising coupled to the scaffold matrix-enhancing molecules in an effective density to elicit production of extracellular matrix without increasing cellular proliferation, wherein when the matrix-enhancing molecule is TGF- $\beta$ , the TGF- $\beta$  is coupled to the matrix by a polymer tether having a molecular weight between 2000 and 6000 and is in a density



21. The method of claim 16 wherein the matrix-enhancing molecule is covalently coupled to a tether which is covalently coupled to the scaffold.
22. The method of claim 16 wherein the scaffold is a hydrogel.
23. The method of claim 22 wherein the hydrogel is formed of a polymer selected from the group consisting of alginate, collagen, hyaluronic acid, and polyethylene glycol polymers.

000000-000000-000000